

**IV. AMENDMENTS OF THE DRAWINGS**

Drawings replacement sheets have been prepared in accordance with Examiner's request with the following corrections:

- (a) Fig. 11 has been inserted on the replacement sheet; Reference numeral 70 has been added to Fig. 11 on the replacement sheet; and
- (b) Reference numeral '54' has been added to Fig. 15 on the replacement sheet.

## **V. REMARKS**

Reconsideration of the application is requested. The present amendments pertain to specification, claims, and abstract sections as well as corrections in drawings.

### ▪ **Statement with Respect to Scope of Amended and Non-Amended Claims**

Amendments to, cancellation of, and additions to, the claims are made in order to streamline prosecution of the case to embodiments that are presently anticipated to be of commercial significance, and are not made for a purpose of patentability. Any amendment, cancellation or addition made herein should not be construed in any manner as indicating Applicants' surrender of any subject matter of the application, or surrender of any equivalent to any element asserted in one or more claims. Applicants do not concede that the scope of the claims set forth below fail to extend as far as the original claims. Furthermore, any narrowing which may be evinced with respect to subject matter covered by the claims as a whole, or by one or more claims of the appended claims, when compared to claims previously in the application, should not be interpreted as indicating that the Applicants have generally disclaimed the territory between the original claimed subject matter and the amended claimed subject matter. Applicants intend each term of the claims set forth below to be read with respect to the full-breadth of the language of the claims and not to be confined to a strict literal read of amended terms. Amended claims elements are to be construed to include substantial equivalents known to those of ordinary skill in the art. Applicants assert that the amendments are made without prejudice and reserve all rights to prosecute any canceled claims, and claims preceding any amendment, and other disclosed

(but not presently claimed) embodiments in the application, in future continuation applications, divisional applications, continuation-in-part applications, continuing prosecution applications, requests for continuing examination, re-examination applications and any other application claiming priority from or through the present application.

- **Status of Claims:**

**Claims 1-20, 21, 22, 24-27, and 36-40 and 46 have been amended, and claims 47 and 48 have been cancelled, without prejudice. No new matter has been introduced with this amendment. Support for the present claims may be found throughout the specification. Claim 2 has also been amended to correct the typographical error noted by the Examiner.**

***Drawings***

The rejected Drawings have been amended. The respective replacement sheets are enclosed.

***Election/Restrictions***

Claims 47-48 are cancelled, without prejudice. Applicant reserves the right to prosecute the cancelled claims in a separate divisional application.

***Specification***

A separate sheet with an abstract for attachment to the instant specification has been enclosed herewith. A copy of the text amendment may be found on page 23 of this response.

The inadvertently misprinted reference numeral "14" has been changed to "13" on page 15 line 5 of the specification as requested.

A new title has been formulated to meet the Examiner's objection.

***Claim Rejections – 35 USC § 103***

Claims 1, 3, 21, 41-44 and 46 have been rejected under 35 USC §103(a) as being obvious over Asanuma (US 5,920,819) in view of Rapport (US 5,437,054).

Specifically, the Examiner contends that Asanuma discloses an overlay cell mobile communication system performing radio communications by forming and laying a macro cell of a macro cell system and a plurality of micro cells of a micro cell system on each other, reading on the claimed operation of CDMA cellular communications system. As the Examiner admits that Asanuma is silent on selection of carrier frequencies based on power, the secondary reference to Rappaport et al. allegedly remedies this deficiency by disclosing a method for sharing channels in a cellular communication system.

Applicant respectfully traverses the Examiner's allegation. Applicant believes that the Examiner has misread the cited art as well as the instant invention as presently claimed. On the contrary, the cited combination of references neither discloses nor even remotely suggests the presently claimed invention which is directed to a method of improving the use of CDMA systems. In fact, the cited references are silent as to the high quality use of CMDA, focusing instead on FDMA/TDMA systems. Applicant notes that to assert a reference under 35 USC § 103(a) it must be analogous prior art (MPEP 2141.01(a) I). In particular, the reference must either be in the field of Applicant's endeavor, or if not, then be reasonably pertinent to the particular problem with which the inventor is concerned. Clearly, the field of the Applicant's endeavor is CDMA-based communication systems. In particular, the Examiner has selected Asanuma as the primary reference, which addresses problems in

FDMA/TDMA based systems. However, although the overall goals (e.g. increased spectral efficiency) of all radio communication systems may be similar, the skilled person is well aware that the problems in reaching those goals in each type of system are very different.

Specifically in CDMA systems, different users share one frequency band, but are assigned different codes and power, whereas in FDMA systems users use many different frequency bands. Thus the problems in achieving greater spectral efficiency are as distinct as the difference between the two systems. The aim of the present invention is to provide a 'Hierarchical Cell Structure'<sup>67</sup> (HCS) in which the same frequency band can be used in both the macro cell and micro cell. The spectral efficiency of such a network is high; however, the result is a serious problem of interference for macro cell terminals (mostly using real-time services) near the micro cell (see different interference scenarios explained in the application). Thus the particular problem is clearly how to enable the high spectral efficiency to be realized without compromising the quality of service of macro cell mobile terminals near the micro cell.

Applicant has further defined the invention by the present amendment of the independent claims 1, 21 and 46 which details are fully supported by the instant Specification. Those of ordinary skill in the art would know that systems employing CDMA do not use groups of up/down carrier frequencies (which are the focus in Asanuma), and would therefore be unable to implement the teaching of Asanuma in a CDMA system. Although the Asanuma reference does mention CDMA very briefly at col. 3 line 34 and col. 12 line 18, considering Asanuma as a whole, there is no support for the Examiner's idea relating to FDMA/TDMA to be implemented in a CDMA system. Furthermore, Asanuma is not reasonably pertinent to the particular problem with which Applicant's claimed solution is

concerned because, for the reasons recited above, it does not logically commend itself to the invention. In addition, the distinct deficiency in Asanuma is not repaired by the alleged combination with Rapport. On the contrary, there is no suggestion of applicability or utility of an improved TDMA/FDMA system with regard to the presently claimed CDMA system.

For these reasons, it is submitted that Asanuma is not analogous prior art within the meaning of MPEP 2141.01(a)I since it is neither in the field of endeavor of the claimed subject matter, nor is it reasonably pertinent to the particular problem with which the claimed invention is concerned. Clearly, the case for *prima facie* obviousness has not been made.

The combination of features provided by each of base claims 1 and 21 as well as claim 46 provides two advantages simultaneously: spectral efficiency of the CDMA system is much greater (i.e. enabling the use of the same frequency band for the macro and micro cells), and non-real time data services can be provided to micro cell terminals without degrading the SINR of macro cell terminals near the micro cell. Furthermore the micro cells are served at a dynamically variable best possible data rate according to the changing interference experienced by the macro cell terminals. None of the available prior art suggests this combination of advantages nor hints at how they might be obtained.

Since the amended base claims 1 and 21 are believed allowable all the rejected claims 3, and 41-44, dependent from the base claims, are also deemed free of the cited references.

Claims 2, 4-5, 7-8, 22-25 and 27-28 are rejected under 35 U.S.C. 103(a) as being obvious over Asanuma (U.S. Patent # 5,920,819) in view of Rappaport et al. (U.S. Patent # 5,437,054), and in further view of Wheatley, III, et al. (U.S. Patent # 6,381,230 B1).

Specifically, it would have been in the Examiner's opinion obvious to a person of ordinary skill in the art at the time the invention was made to use power that represents interference as taught by Wheatley, III, et al. in the combination of Asanuma and Rappaport et al., in order to determine movement or location of a subscriber.

Applicant traverses the Examiner's allegation, in view of the above discussion, the claimed invention is believed novel and completely unobvious over the cited references. Applicant respectfully traverses the Examiner's allegation. Applicant believes that the Examiner has misread the alleged prior art as well as the invention as presently claimed. On the contrary, the cited references taken alone or in combination neither disclose nor even remotely suggest the presently claimed invention which is directed to a method of improving the use of CDMA systems. Furthermore, since the amended base claims 1 and 21 are believed allowable, the rejected claims 2, 4-5, 7-8, 22-25 and 27-28, dependent from claim 1, are also deemed free of the cited references.

Claims 6 and 26 are rejected under 35 U.S.C. 103(a) as being obvious over the combination of Asanuma (U.S. Patent # 5,920,819) and Rappaport et al. (U.S. Patent # 5,437,054), in view of Wheatley, III, et al. (U.S. Patent # 6,381,230 B1), and in further view of Innes et al. (U.S. Patent # 6,061,565). In the Examiner's opinion, it would have been



obvious to a person of ordinary skill in the art at the time the invention was made to determine location using triangulation as taught by Innes et al. in the combination of Asanuma and Rappaport et al., as modified by Wheatley, III et al., in order to control communication in a system with macro and micro cells.

Applicant respectfully traverses the Examiner's alleged grounds for rejecting these claims. Applicant believes that the Examiner has misread the alleged prior art as well as the invention as presently claimed. On the contrary, the cited combination of references neither discloses nor even remotely suggests the presently claimed invention which is directed to a method of improving the use of CDMA systems. For the reasons set forth above, as the claims 6 and 26 are dependent from base claims deemed allowable they are also believed allowable.

Claims 9 and 29 are rejected under 35 U.S.C. 103(a) as being obvious over the combination of Asanuma (U.S. Patent # 5,920,819) and Rappaport et al. (U.S. Patent # 5,437,054), in view of Wheatley, III et al. (U.S. Patent # 6,381,230 B1), and in further view of Bloch (U.S. Patent # 6,765,898). Specifically, the Examiner alleges that it would have been obvious to a person of ordinary skill in the art at the time the invention claimed in claim 9 and 29 was made to have the power level of mobile stations in the micro cell less than those in the macro cell as taught by Bloch in the combination of Asanuma and Rappaport et al., as modified by Wheatley, III, et al., in order to control interference. Applicant respectfully traverses the Examiner's alleged grounds for rejecting these claims. Applicant believes that the Examiner has misread the alleged prior art as well as the invention as

presently claimed. On the contrary, the cited combination of references neither discloses nor even remotely suggests the presently claimed invention which is directed to a method of improving the use of CDMA systems. For the reasons set forth above, since the claims 9 and 29 are dependent from allowable base claims, they are also believed allowable.

Claims 11, 31 and 45 are rejected under 35 U.S.C. 103(a) as being obvious over Asanuma (U.S. Patent # 5,920,819) in view of Rappaport et al.(U.S. Patent # 5,437,054), and in further view of Yamashita (U.S. Patent # 6,256,500B1). In the opinion of the Examiner, therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine the speed of a mobile station as taught by Yamashita in the combination of primary reference to Asanuma and secondary reference to Rappaport, et al., in order to control communication in a system with macro and micro cells. Re claim 45, the Examiner opines that it is inherent that the microcomputer in the base station uses a program to execute its functions. Applicant respectfully traverses the Examiner's alleged grounds for rejecting these claims. Applicant believes that the Examiner has misread the alleged prior art as well as the invention as presently claimed. On the contrary, the cited combination of references neither discloses nor even remotely suggests the presently claimed invention which is directed to a method of improving the use of CDMA systems. For the reasons set forth above, since the claims 11, 31, and 45 are dependent from allowable base claims, they are also believed allowable.

Claims 12-13 and 32-33 are rejected under 35 U.S.C. 103(a) as being

Obvious over Asanuma (U.S. Patent # 5,920,819) in view of Rappaport et al (U.S. Patent # 5,437,054), and in further view of Reemtsma (Pub # U.S. 2002/0009998 A1). Therefore, in the Examiner's opinion, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to interrupt an interfering signal as taught by Reemtsma in the combination of Asanuma and Rappaport et al., in order to control communication interference in a system. Applicant respectfully traverses the Examiner's alleged grounds for rejecting these claims. Applicant believes that the Examiner has misread cited art and the invention as presently claimed. On the contrary, the cited combination of references neither discloses nor even remotely suggests the presently claimed invention which is directed to a method of improving the use of CDMA systems. For the reasons set forth above, since the claims 12-13 and 32-33 are dependent from allowable base claims, they are also believed allowable.

Claims 14 and 34 are rejected under 35 U.S.C. 103(a) as being obvious over Asanuma (U.S. Patent # 5,920,819) in view of Rappaport et al. (U.S. Patent # 5,437,054), and in further view of Gorti et al. (Pub # US. 2003/0189943 A1). Therefore, in the opinion of the Examiner, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to prioritize packets as taught by Gorti et al. in the combination of Asanuma and Rappaport et al., in order to control a communication system.

Applicant respectfully traverses the Examiner's alleged grounds for rejecting these claims. Applicant believes that has misread the invention as presently claimed. On the contrary, the cited combination of references neither discloses nor even remotely suggests the presently

claimed invention which is directed to a method of improving the use of CDMA systems. For the reasons set forth above, since the claims 14-34 are dependent from allowable base claims, they are also believed allowable.

Claim 15 is rejected under 35 U.S.C. 103(a) as being obvious over Asanuma (U.S. Patent # 5,920,819) in view of Rappaport et al. (U.S. Patent 5,437,054), and in further view of Kim et al. (Pub # U.S. 200310068983 A1). The Examiner alleges that claim 15, as applied to claim 1, is shown by Asanuma, as modified by Rappaport et al., except that macro cell base station has an adaptive antenna. Moreover, Kim et al. allegedly show and disclose a mobile communication apparatus with an antenna array, wherein the apparatus includes a base station with an antenna array a mobile station.

Applicant respectfully traverses the Examiner's alleged grounds for rejecting these claims. Applicant believes that the Examiner has misread the alleged prior art as well as the invention as presently claimed. On the contrary, the cited combination of references neither discloses nor even remotely suggests the presently claimed invention which is directed to a method of improving the use of CDMA systems. For the reasons set forth above, since the claim 15 is dependent from allowable base claims, it is also believed allowable.

Claims 16 and 36 are rejected under 35 U.S.C. 103(a) as being obvious over Asanuma (U.S. Patent # 5,920,819) in view of Rappaport et al. (U.S. Patent # 5,437,054), and in further view of Amirijoo et al. (U.S. Patent # 6,728,217 B1). In the Examiner's opinion, regarding claim 16, as applied to claim 1, Asanuma, as modified by Rappaport et al., allegedly shows and discloses the claimed invention except that data transmission rate is adjusted for stations served by the micro cell base station. In the same field of endeavor,

Amirijoo et al. clearly show and disclose a method for improving quality of data calls within a cellular network by dynamically changing the air interface data rate for transparent and non-transparent services. Applicant respectfully traverses the Examiner's alleged grounds for rejecting these claims. Applicant believes that the Examiner has misread the alleged prior art as well as the invention as presently claimed. On the contrary, the cited combination of references neither discloses nor even remotely suggests the presently claimed invention which is directed to a method of improving the use of CDMA systems. For the reasons set forth above, since the claims 16 and 36 are dependent from allowable base claims, these claims are also believed allowable.

Claim 35 is rejected under 35 U.S.C. 103(a) as being obvious over the combination of Asanuma (U.S. Patent # 5,920,819) and Rappaport et al. (U.S. Patent # 5,437,054), in view of Yamashita (U.S. Patent # 6,256,500 B1), and in further view of Kim et al. (Pub # U.S. 2003/0068983 A1). In the Examiner's opinion therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have a base station with an antenna array as taught by Kim et al. in the combination of Asanuma and Rappaport et al., in order to control interference. Applicant respectfully traverses the Examiner's alleged grounds for rejecting these claims. Applicant believes that the Examiner has misread the alleged prior art as well as the invention as presently claimed. On the contrary, the cited combination of references neither discloses nor even remotely suggests the presently claimed invention which is directed to a method of improving the use of CDMA systems. For the reasons set forth above, since the claim 35 is dependent from an allowable base claim, the claim 35 is also believed allowable.

***Allowable Subject Matter***

Claims 10, 17-20, 30 and 37-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant acknowledges gratefully the Examiner's conditional allowance of these claims. However, Applicant respectfully asserts that in view of the allowability of the base claims from which the above claim depend, they are also deemed allowable without further amendment.

In view of the amendment and remarks set forth above, Applicant respectfully asserts that the rejection of the pending claims as amended under 35 USC 103 is improper. Applicant has made a good faith effort to place this application in condition for allowance, which favorable action is herewith solicited.

**CONCLUSION**

The Examiner is herewith invited to contact the undersigning agent for Applicant by telephone if the corrective action needs further amendment.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Hans-Peter G. Hoffmann', with a long horizontal flourish extending to the right.

Dated: May 25, 2006.

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